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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/728,215 | 11/29/2000 | Karl M. Bizjak | 072548-0293357 | 6535 |
| 27498 7590 02/09/2007 PILLSBURY WINTHROP SHAW PITTMAN LLP P.O. BOX 10500 MCLEAN, VA 22102 | | | EXAMINER FAULK, DEVONA E | |
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| | | | 2615 | |
| SHORTENED STATUTORY PERIOD OF RESPONSE | | MAIL DATE | DELIVERY MODE | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 09/728,215 | Applicant(s) BIZJAK, KARL M. | |
| | Examiner Devona E. Faulk | Art Unit 2615 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-81, 89-93 and 106-120 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 12-35, 38-47, 50-54, 59-62, 68, 69, 77-81, 89-93 and 118 is/are rejected.
- 7) ☒ Claim(s) 20, 36, 37, 55-58, 63-67 and 70-76 is/are objected to.
- 8) ☒ Claim(s) 6-11, 48, 49, 82-88, 94-117, 119 and 120 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/26/2005</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Remarks

1. The applicant asserts that the claims are incorrectly classified and therefore the identification of species of the claims is necessarily arbitrary. The examiner disagrees. The examiner asserts that election of species is based on the fact that each species is drawn to different methods of performing the same step. The examiner is maintaining the species election requirement.
2. Claims 82-88 and 94-105 were withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention there being no allowable generic or linking claim. Election was made with traverse in the reply filed on 1/21/2005.
3. The applicant has added new claims 106-120. The examiner has determined that claims 106-117, 119-120 are drawn to non-elected subject matter, species II and III and are withdrawn from consideration.
4. Regarding the applicant drawing the examiner attention to 381/94.1, the examiner asserts that this subclass was already included in the examiner's search strategy. Regarding the issue of classification, 381/71.14 is where our classifier classified the case however the examiner will determine if 94.1 is more appropriate and will make sure the case is classified correctly if the case is ever allowed.

Election/Restrictions

5. **Claims 6-11, 48 and 49, 106-117, 119-120** are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species,

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there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 10/6/2006. The applicant asserts that the claims are incorrectly classified and therefore the identification of species of the claims is necessarily arbitrary. The examiner disagrees. The examiner asserts that election of species is based on the fact that each species is drawn to different methods of performing the same step. The examiner is maintaining the species election requirement.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. **Claims 2-4,13,16-18, 21-24,26-33, 41,43,45-47,50,53,60-62,69,77-81,89-93,118** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites "...and the time response algorithm includes delaying responding to a change in the noise indicia above a threshold ". **Claims 4 and 118** recite " wherein the time response algorithm further includes converging on a noise level corresponding to the noise indicia above the threshold following the delayed response. The abstract discloses using an algorithm that includes time response and that the algorithm may include thresholding delay or convergence

but there is no disclosure in the specification of a time response algorithm including delaying responding to a change in the noise indicia above a threshold.

Claim 3 recites “... and the time response includes providing a response which is relatively slow in comparison to the change in noise indicia”. The specification teaches of using an algorithm that includes time response but not that the time response algorithm includes providing a response which is relatively slow in comparison to the change in noise indicia.

Claim 13 recites “ wherein the environmental input is a digital signal”. The specification teaches that there can be multiple inputs and that some of those inputs could be digital but it fails to disclose that the environmental input is digital. The environmental signal comes from a microphone which provides an analog signal.

Claims 16-18 recite “ ..in accordance with a plurality of such algorithms, with at least some of such algorithms based on a different choice within the group”. The specification discloses algorithms (page 62 and page 78) but does not disclose modifying in accordance with a plurality of algorithms, where the plurality of algorithms are based on a different choice within the group.

Claim 21 recites “converting the feedback signal to a gain offset having a predetermined maximum and minimum selected to correct for the small noise fluctuation “. **Claim 22** recites “further including the step of rectifying and envelope detecting the environment input and the reference input prior to the step of determining the difference”. **Claim 23** recites “further including the step

of converting the environmental input and the reference input by the root-mean-square prior to the step of determining the difference". **Claim 24** recites "further including the step of converting the environmental input and the reference input by a Fourier transform prior to the step of determining the difference". **Claims 41,43,60,62,69,80,91** recites " wherein the signal processing step includes at least one of a group comprising RMS power estimation, Fourier transform...". Although the specification teaches of converting and signal processing , it does not disclose converting or signal processing using a root-mean-square or a Fourier transform.

Claim 26-33,61,62 recite " selecting as an unmodified output signal the one signal of the group modified in the modifying step". **Claims 77-81,89-93** recite "selecting.. as an unmodified output signal the one signal of the group modified in the modifying step". The examiner is not clear as to how a modified signal can be selected as an unmodified output signal.

Claims 45-47 recite "wherein the algorithm includes a plurality of algorithms". The specification discloses algorithms (page 62 and page 78) but does not disclose that one algorithm includes a plurality of algorithms. The abstract discloses a noise extraction method in which an environmental input which includes a noise indicia is selectively modified in accordance with an algorithm that includes one or more factors representing time response; amplitude of response, and error correction. The algorithm may also include

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thresholding delay or convergence, among other techniques. One or more factors does not equate to a plurality of algorithms.

Claim 53 recites “ .. a sensitivity control signal...”. It is not clear to the examiner what reads on the sensitivity control signal and also how sensitivity is defined.

8. Regarding **claim 50**, the phrase "or like kind" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "or the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. **Claims 1,12,14,15,19,34,35,38-40,44** are rejected under 35 U.S.C. 102(b) as being anticipated by Shen (US 5,419,845).

Regarding **claim 1**, Shen discloses a noise extraction method comprising the steps of:

Providing an environmental input which includes a noise indicia (sensors 122 and 124, Figures 1A, 1B),

Selectively modifying the environmental input in accordance with an algorithm based on at least one of a group including time response, amplitude of response, and error correction (column 10, lines 15-23 and 33-33; column 11, line 25-40), and

Generating an output signal accordingly (Figure 1B).

Regarding **claims 12 and 34**, Shen discloses wherein the environment input comprises a plurality of environmental sub-inputs/inputs (Figures 1A and 1B).

Regarding **claim 14**, Shen discloses wherein the environmental input is an analog signal (Figure 1B).

Regarding **claim 15**, Shen discloses selectively modifying the environmental input includes multiple instances of modifying in accordance with the selected algorithm (column 10, lines 15-23 and 33-33; column 11, line 25-40).

Regarding **claim 19**, Shen discloses wherein the output signal includes a plurality of signals (Figure 1B).

Regarding **claim 35**, Shen discloses wherein the environmental input is at least one of a group comprising a microphone, an accelerometer, a tachometer, and a speedometer (sensors 122 and 124 are microphones, Figures 1A and 1B).

Regarding **claim 44**, Shen discloses wherein the modifying step includes an algorithm based on time response, and the time response algorithm includes variable attack and release (column 11, line 23- column 12, line 65).

Regarding **claim 38**, Shen discloses a noise extraction method comprising the steps of :

providing a plurality of environmental inputs each of which includes indicia corresponding directly or indirectly to environmental noise (environmental input sensors 122 and 124, Figures 1B),

combining a plurality of the environmental inputs into a primary environmental input (1B),

selectively modifying the primary environmental input in accordance with an algorithm based on at least one of a group including time response, amplitude of response, and error correction (column 10, lines 15-23 and 33-33; column 11, line 25-40), and

Generating an output signal accordingly (Figure 1B).

All elements of claims **39 and 40** are comprehended by the rejection of claim 38 (column 5, lines 15-50)

11. **Claims 25,59,60 and 62** are rejected under 35 U.S.C. 102(b) as being anticipated by the applicant's admitted prior art (hereafter AAPA) (Figure 2, page 4- page 5).

Regarding claim 25, AAPA discloses a noise extraction method comprising the steps of:

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providing a reference signal (speaker Figure 2, page 4);
providing an environmental input which includes noise indicia with a small noise fluctuation amplitude (Figure 2);
determining the difference between the environmental input and the reference signal to generate a negative feedback signal (Figure 2),
modifying one signal of a group comprising the environmental input and the reference signal to minimize the difference to correct for the small noise fluctuation amplitude (Figure 2, page 4), and
generating a modified output signal in accordance therewith (Figure 2).

All elements of **claims 59,60 and 62** are comprehended by the rejection of claim 25 (See AAPA as applied to claim 25 above and AAPA teach of processing using filtering on page 4).

12. **Claims 51,52 and 54** are rejected under 35 U.S.C. 102(b) as being anticipated by Germer (US 4,628,526).

Regarding **claim 51**, Germer discloses a noise extraction method comprising the steps of:

Providing a reference input indicative of output power level (output of speaker 10, Figure 1),

Providing an environmental input which includes a noise indicia (microphone 11, Figure 1),

Generating an indication of noise power level in response to the environmental input (envelope curve signal, see abstract; column 5, lines 15-35),

Comparing the reference input to the indication of noise power level (abstract; column 5, lines 15-35),

Selectively modifying system gain in accordance with compare step (abstract; column 5, lines 15-55).

Regarding **claim 52**, Germer further discloses that modifying is done when the noise level exceeds a predetermined threshold (column 5, lines 43-59).

All elements of **claim 54** are comprehended by the rejection of claim 51.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. **Claim 5** is rejected under 35 U.S.C. 102(b) as being anticipated by Shen (US 5,419,845).

Regarding claim 5, the examiner takes official notice that converging comprising one of a nonlinear response, an exponential response, and a logarithmic response is well known in the art.

15.

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16. **Claim 21,42,68** are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art (hereafter AAPA) (Figure 2, page 4-page 5) in view of Humphrey (US 4,306,115).

Regarding **claim 21**, AAPA discloses a method for correction for small noise fluctuation including the steps of providing at least one environmental input having a noise indicia with a small noise fluctuation amplitude (microphone, Figure 2),

providing at least one reference input (speaker Figure 2, page 4),

determining the difference between the environmental input and the reference input to generate a feedback signal (Figure 2),

converting the feedback signal to a gain offset to correct for the small noise fluctuation (Figure 2, page 4).

AAPA fails to disclose the gain having a predetermined maximum and minimum. Humphrey discloses the concept of gain that has a predetermined minimum and maximum (column 3, lines 17-19). It would have been obvious to modify the AAPA so that the gain has a predetermined maximum and minimum in order to provide a operating or working range for the user.

All elements of **claim 42** are comprehended by the rejection of claim 21.

All elements of **claim 68** are comprehended by the rejection of claim 25 (See AAPA as applied to claim 21 above and AAPA teach of processing using filtering on page 4).

17. **Claim 20** is rejected under 35 U.S.C. 103(a) as being unpatentable over Shen (US 5,419,845) in view of the applicant's admitted prior art (hereafter AAPA) (Figure 2, page 4-page 5).

Regarding **claim 20**, Shen discloses a reference signal and environmental signal and modifying at least one of the environmental input and the reference input according to processing performed on both signals. Shen uses teaches of a summer (214, Figure 2) but the summer can also be used as a subtractor as indicated by the +, - signs. Shen fails to explicitly disclose determining a difference signal between the environmental input and the reference signal to generate a negative feedback signal. AAPA discloses determining a difference signal between the environmental input and the reference signal to generate a negative feedback signal (Figure 2, pages 4-5). It would have been obvious to modify Shen to determine the difference between the environmental input and reference input to generate a negative feedback in order to provide better noise compensation.

Claim Objections

18. **Claims 16-18,20,36-37,55-58,63-67,71-76** objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

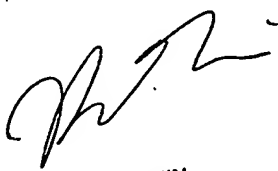
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Devona E. Faulk whose telephone number is 571-272-7515. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848.

The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2615. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DEF


VIVIAN CHIN
SUPERVISOR, PATENT EXAMINER
TECHNOLOGY CENTER 2600

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